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NAVFAC **IGS-01561 (MAY 2002)**

Preparing Activity: LANTNAVFACENGCOM **Based on UFGS-01561L**

ITALIAN GUIDE SPECIFICATIONS

Use for ITALIAN projects only

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SECTION 01561
EROSION AND SEDIMENT CONTROL
05/02

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NOTE: This guide specification is issued by the Atlantic Division, Naval Facilities Engineering Command for regional use in Italy.

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NOTE: This specification covers requirements for erosion and sediment control for use in the EFA MEDITERRANEAN area where the requirements of Section 01575, "Temporary Environmental Controls" are not sufficient. This guide specification may be modified to suit other states. Note: The following needs to be shown on the drawings (as a minimum):

1. Limits of earthwork
2. Location of erosion control structures
3. Standard Details

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Comments and suggestion on this specification are welcome and should be directed to the technical proponent of the specification. A listing of the technical proponents, including their organization designation and telephone number, is on the Internet.

Use of electronic communication is encouraged.

Brackets are used in the text to indicate designer choices or locations where text must be supplied by the designer.

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PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the

basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A 185	(1997) Steel Welded Wire Fabric, Plain, for Concrete Reinforcement
ASTM D 3787	(1989) Bursting Strength of Knitted Goods Constant-Rate-of-Transverse (CRT) Ball Burst Test
ASTM D 4355	(1992) Deterioration of Geotextiles From Exposure to Ultraviolet Light and Water
ASTM D 4533	(1991) Trapezoid Tearing Strength of Geotextiles
ASTM D 4632	(1991) Grab Breaking Load and Elongation of Geotextiles
ASTM D 5141	(1996) Determining Filtering Efficiency and Flow Rate of a Geotextile for Silt Fence Application Using Site-Specific Soil

1.2 DESCRIPTION OF WORK

The work includes the provision of temporary and permanent erosion control measures to prevent the pollution of air, water, and land within the project limits and in areas outside the project limits where work is accomplished in conjunction with the project.

1.3 SUBMITTALS

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NOTE: Submittals must be limited to those necessary for adequate quality control. The importance of an item in the project should be one of the primary factors in determining if a submittal for the item is required.

A "G" following a submittal item indicates that the submittal requires Government approval. Some submittals are already marked with a "G". Only delete an existing "G" if the submittal item is not complex and can be reviewed through the Contractor's Quality Control system. Only add a "G" if the submittal is sufficiently important or complex in context of the project

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For submittals requiring Government approval on Army projects, a code of up to three characters within the submittal tags may be used following the "G" designation to indicate the approving authority. Recommended codes for Army projects are "RE" for

Resident Engineer approval, "ED" for Engineering approval, and "AE" for Architect-Engineer approval. Codes following the "G" typically are not used for Navy projects.

Submittal items not designated with a "G" are considered as being for information only for Army projects and for Contractor Quality Control approval for Navy projects.

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Submit the following in accordance with Section 01330, "Submittal Procedures."

SD-01 Preconstruction Submittal

Construction Sequence Schedule G

SD-03 Product Data

Filter Barriers

Sediment Fence

Dust Suppressors

Erosion Control Matting

Filter Fabric

1.4 QUALITY ASSURANCE

1.4.1 Construction Sequence Schedule

Submit a Contractor furnished construction work sequence schedule, a minimum of 30 days prior to start of construction. The work schedule shall coordinate the timing of land disturbing activities with the provision of erosion control measures to reduce on site erosion and off site sedimentation. Installation of temporary erosion control features shall be coordinated with the construction of permanent erosion control features to assure effective and continuous control of erosion and pollution.

PART 2 PRODUCTS

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NOTE: It is recommended that State standard erosion control details be used, where possible. Use LANTDIV standard details where State details are not available.

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NOTE: Coordinate terminology between specs and drawings. CHECK size and length of posts; spacing

of posts, whether or not wire fabric is used, etc and make sure description in spec agrees with details on drawings.

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2.1 FILTER BARRIERS

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NOTE: The filter barriers specified herein have a fabric height of approximately 381 to 863 mm 15 to 34 inches above grade. North Carolina does not use Filter Barriers.

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2.1.2 LANTDIV Standard Filter Barriers

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NOTE: Use this paragraph when LANTDIV standard filter barrier details are used, in lieu of State standards, and delete paragraph entitled "State Standard Filter Barriers."

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2.1.2.1 Posts

25 by 51 mm2 by 2 inch seasoned wood posts, 38 mm 1 1/2 inch diameter seasoned wood posts or 1.5 kg per linear meter 1.0 pound per linear foot steel posts. Posts shall be minimum one meter 3 feet long.

2.1.2.2 Filter Fabric

A woven or nonwoven polypropylene, nylon, or polyester containing stabilizers and/or inhibitors to make the fabric resistant to deterioration from ultraviolet, and with the following properties:

a. Minimum grab strength (TF 25 #1/ASTM D 4632) .4 kN 90 pounds

b. Elongation (TF 25 #1/ASTM D 4632) 15 percent (minimum) to 50 percent (maximum) (at .2kN 45 pounds grab)

c. Minimum U.V. Resistance (ASTM D 4355) 70 percent strength retained at 500 hours.

d. Minimum Filtering Efficiency (ASTM D 5141) 75 percent

e. Minimum Flow Rate (ASTM D 5141) .136 liters/second/square meter .2 gallons/minute/square foot

2.1.2.3 Standard Catalog Product

A manufacturer's standard catalog product for a preassembled filter barrier may be provided in lieu of the indicated filter barrier except that the filter fabric shall be as specified, and the height of the structure shall be as indicated.

2.2 SEDIMENT FENCE

2.2.2 LANTDIV Standard Sediment Fence

2.2.2.1 Posts

102 by 102 mm4 by 4 inch wood posts, minimum 76 mm 3 inch diameter wood, or 2 kg per linear meter 1.33 pound per linear foot steel posts. Posts shall be minimum 1.5 meters 5 feet long.

2.2.2.2 Wire Fabric

ASTM A 185, 6 by 6, minimum 12 1/2 gage.

2.2.2.3 Filter Fabric

A woven or nonwoven polypropylene, nylon, or polyester containing stabilizers and/or inhibitors to make the fabric resistant to deterioration from ultraviolet, and with the following properties:

a. Minimum grab strength (TF 25 #1/ASTM D 4632) .4 kN90 pounds

b. Elongation (TF 25 #1/ASTM D 4632) 15 percent (minimum) to 50 percent (maximum) (at .2kN 45 pounds grab)

c. Minimum U.V. Resistance (ASTM D 4355) 70 percent strength retained at 500 hours.

d. Minimum Filtering Efficiency (ASTM D 5141) 75 percent

e. Minimum Flow Rate (ASTM D 5141) .136 liters/second/square meter .2 gallons/minute/square foot

2.2.2.4 Standard Catalog Product

A manufacturer's standard catalog product for a preassembled sediment fence may be provided in lieu of the indicated sediment fence, except that the filter fabric shall be as specified, and the height of the structure shall be as indicated.

2.3 SILT FENCE [DROP INLET] [CATCH BASIN] PROTECTION

2.3.2 LANTDIV Standard Catch Basin Protection

2.3.2.1 Posts

25 by 51 mmOne by two inch seasoned wood posts, 38 mm 1 1/2 inch diameter seasoned wood posts or 1.5 kg per linear meter 1.0 pound per linear foot steel posts. Posts shall be minimum one meter 3 feet long.

2.3.2.2 Filter Fabric

A woven or nonwoven polypropylene, nylon, or polyester containing

stabilizers and/or inhibitors to make the fabric resistant to deterioration from ultraviolet, and with the following properties:

a. Minimum grab strength (TF 25 #1/ASTM D 4632) .4 kN90 pounds

b. Elongation (TF 25 #1/ASTM D 4632) 15 percent (minimum) to 50 percent (maximum) (at .2kN 45 pounds grab)

c. Minimum U.V. Resistance (ASTM D 4355) 70 percent strength retained at 500 hours.

d. Minimum Filtering Efficiency (ASTM D 5141) 75 percent

e. Minimum Flow Rate (ASTM D 5141) .136 liters/second/square meter .2 gallons/minute/square foot

2.3.2.3 Standard Catalog Product

A manufacturer's standard catalog product for a preassembled filter barrier may be provided in lieu of the indicated catch basin protection, except that the filter fabric shall be as specified, and the height of the structure shall be as indicated.

2.6 CONSTRUCTION ENTRANCE

2.6.2 LANTDIV Standard Construction Entrance

2.6.2.1 Aggregate

Aggregate shall be gravel or crushed stone having the following gradation:

PERCENT PASSING	SIEVE OPENING
Minimum 100	38 mm
95 to 100	25 mm
25 to 60	13 mm
0 to 10	5 mm

2.6.2.2 Filter Fabric

A woven or nonwoven polypropylene, nylon, or polyester containing stabilizers and/or inhibitors to make the fabric resistant to deterioration from ultraviolet, and with the following properties:

a. Minimum grab tensile strength (TF 25 #1/ASTM D 4632) .8 kN 180 pounds

b. Minimum Puncture (TF 25 #4/ASTM D 3787) .52 Mpa 75 psi in the weakest direction

c. Apparent Opening Size 40-80 (U.S. Sieve Size)

d. Minimum Trapezoidal tear strength (TF 25 #2/ASTM D 4533) .22 kN 50

pounds

2.7 DUST SUPPRESSORS

Calcium chloride, or other standard manufacturer's spray on adhesives designed for dust suppression.

2.8 TEMPORARY SEEDING

2.8.2 LANTDIV Standard Temporary Seeding

2.8.2.1 Seed

Provide seed, lime, and fertilizer in accordance with Section 02921, "Turf".

2.8.2.3 Mulch

Hay or straw. Provide in an air dried condition for placement with commercial mulch blowing equipment.

2.9 EROSION CONTROL MATTING

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NOTE: The specification standards vary widely between the various States. Use this paragraph if erosion control matting is required.

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Jute, excelsior, or paper matting that has not been bleached or dyed. Provide matting in minimum 1.2 meter 4 feet widths. Staples for anchoring the matting shall be minimum 11 gage wire, formed into a "U" shape with a minimum throat width of 25.4 mm one inch and minimum length of 152 mm 6 inches after forming.

2.9.1 Jute Matting

A uniform open plain weave of single jute yarn providing an average weight of .5 kg per square meter 0.9 pounds per square yard of matting. Yarn shall be of a loosely twisted construction and shall not vary in thickness by more than one-half its normal diameter. Matting shall have openings between strands length wise of 11 to 19 mm 0.45 to 0.75 inch, and between strands crosswise of 17 to 29 mm 0.67 to 1.13 inch.

2.9.2 Excelsior Matting

A machine produced mat of wood excelsior with a minimum of 80 percent of wood fibers 152 mm 6 inches in length or longer. The matting shall have an average weight of .41 to .46 kg per square meter 0.75 to 0.85 pounds per square yard with an even fiber distribution producing a consistent mat thickness, and shall have on one side a woven fabric. The woven fabric shall be twisted paper cord, cotton cord, or an extruded plastic mesh with a minimum mesh size of 25 by 25 mm one by one inch and a maximum mesh size of 38 by 76 mm 1 1/2 by 3 inch.

2.9.3 Paper Matting

Shall be a knitted polypropylene yarn with uniform openings with biodegradable paper strips continuously interwoven. The matting shall weigh a minimum of .05 kg per square meter 0.09 pounds per square yard with maximum openings of 19 mm 3/4 inch and minimum openings of 13 mm 1/2 inch.

2.9.4 Straw Matting

A machine produced straw mat with a minimum thickness of 13 mm 1/2 inch +/- 3 mm 1/8 inch. The straw shall be evenly distributed throughout the mat to provide a minimum average dry weight of .38 kg per square meter .70 pounds per square yard. The topside of the mat shall be covered with a 9 mm 3/8 inch biodegradable plastic mesh, with the mesh attached to the straw by a knitting process using biodegradable thread.

PART 3 EXECUTION

3.1 CONSTRUCTION SEQUENCE SCHEDULE

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NOTE: Coordinate terminology with those items used in Part 2 Products.
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Stabilize areas for construction access immediately with gravel. Install principal sediment basins and traps before any major site grading takes place. Provide additional sediment traps, [sediment fences], and filter barriers as grading progresses. Provide [drop inlet] [catch basin] protection around existing drainage structures, and inlet and outlet protection at the ends of new drainage systems. Stabilize graded and disturbed areas immediately after grading. Permanent stabilization shall be provided immediately on areas that have been final graded. Temporary seeding and mulching shall be provided on disturbed areas as specified in the paragraph titled "Temporary Seeding." Installation of temporary erosion control features shall be coordinated with the construction of permanent erosion control features to assure effective and continuous control of erosion and sediment deposition. **Remove temporary erosion control measures at the end of construction and provide permanent seeding.**

3.2 FILTER BARRIERS [AND SEDIMENT FENCES]

Install posts [at the spacing indicated] [a maximum of 1829 mm 6 feet on center], and at an angle between 2 degrees and 20 degrees towards the potential silt load area. [Filter barrier height shall be 381 to 457 mm 15 to 18 inches.] [Sediment fence height shall be approximately 406 mm 16 inches [__ mminches].] Do not attach filter fabric to existing trees. Secure filter fabric to the post [and wire fabric] using staples, tie wire, or hog rings. Imbed the filter fabric into the ground [as indicated]. Splice filter fabric at support pole using a 152 mm6 inch overlap and securely seal.

3.3 [DROP INLET] [CATCH BASIN] PROTECTION

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NOTE: Coordinate terminology with paragraph entitled "Silt Fence [Drop Inlet] [Catch Basin] Prptection."

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Provide stakes evenly spaced around the perimeter of the [drop inlet] [catch basin], a maximum of one meter 3 feet apart. Stakes shall be driven immediately adjacent to the drainage structure, a minimum of 457 mm 18 inches into the ground. The fabric shall be securely fastened to the outside of the stakes, with the bottom of the fabric placed into a trench and backfilled.

3.5 CONSTRUCTION ENTRANCE

Provide [as indicated] [a minimum 15.2 meters 50 feet long, 6.1 meters 20 feet wide entrance], a minimum of 152 mm 6 inches thick, at points of vehicular ingress and egress on the construction site. Construction entrances shall be cleared and grubbed, and then excavated a minimum of 76 mm 3 inches prior to placement of the filter fabric and aggregate. The aggregate shall be placed in a manner that will prevent damage and movement of the fabric. Place fabric in one piece, where possible. Overlap fabric joints a minimum of 305 mm 12 inches.

3.6 DUST SUPPRESSORS

Immediately dampen the surface before calcium chloride application. Apply dust suppressors on unsurfaced base, subbase and other unsurfaced travel ways. Apply calcium chloride at the rate of 4.9 to 6.1 kilograms per square meter 1.0 to 1.25 pounds per square yard of surface for pellets for the initial application. For subsequent applications of calcium chloride, application rates may be approximately 75 percent of initial application rates. Do not apply when raining or the moisture conditions exceed that required for proper application. Apply other dust suppressors in accordance with manufacturers instructions. Protect treated surfaces from traffic for a minimum of 2 hours after treatment. Repeat application of dust suppressors as required to control dust emissions.

3.7 TEMPORARY SEEDING

3.7.1 Time Restrictions

Within 48 hours after attaining the grading increment specified herein, provide seed, fertilizer, mulch and water on graded areas when any of the following conditions occur:

a. Grading operations stop for an anticipated duration of 30 days or more.

b. When it is impossible or impractical to bring an area to finish grade so that permanent seeding operations can be performed without serious disturbance from additional grading.

c. Grading operations for a specific area are completed and the seeding seasons specified for permanent seeding [in Section 02921,

"Turf"] is more than 30 days away.

d. When an immediate cover is required to minimize erosion, or when erosion has occurred.

e. Provide on erosion control devices constructed using soil materials.

3.8 EROSION CONTROL MATTING

Place matting in the direction of the flow of water. The up channel mat ting end shall be toed in a narrow trench a minimum of 5 inches127 mm deep. Where one roll of matting ends and a second roll begins, the end of the upper roll shall be brought over the buried end of the second roll, to provide a 6 inch152 mm overlap. Where matting widths are laid side by side, the overlap between matting shall be 4 inches102 mm. Provide check slots every 50 feet15 meters longitudinally in the matting. Construct check slots by providing a narrow trench 5 inches127 mm deep and folding the matting down in to the trench, across the bottom of the trench, and then back up the trench to the existing ground Backfill and compact the trench using the excavated material from the trench. Staple matting ends, junctions, and check slots at 10 inches254 mm on center. Staple matting outer edges and overlaps and the center of each matting strip at 3 feet1 meter on center. Install excelsior matting with the woven fabric on top.

3.9 MAINTENANCE AND INSPECTION

Inspect erosion control devices after each rainfall and daily during pro longed rainfall. Remove sediment deposits after each rainfall or when sediment reaches approximately one-half the barrier height. Immediately repair damaged erosion control devices and damaged areas around and underneath the devices. Maintain erosion control devices to assure continued performance of their intended function. Modify the erosion control plan as required to control problem areas noticed after each inspection. Modifications shall be approved by the Contracting Officer.

3.10 CLEAN UP

At the completion of the job, or when directed or approved by the Contract ing Officer, temporary erosion control devices shall be removed. Erosion control devices and areas immediately adjacent to the device shall be filled (where applicable), shaped to drain and to blend into the surrounding contours, and provided with permanent seeding. Erosion control devices may remain in place after job completion when approved by the Contracting Officer.

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NOTE: Suggestions for improvement of this specification will be welcomed using the Navy "Change Request Forms" subdirectory located in SPECSINTACT in Jobs or Masters under "Forms/Documents" directory or DD Form 1426. Suggestions should be forwarded to:

LANTNAVFACENGCOM
Code 406
1510 Gilbert Street
Norfolk, VA 23511-2699

FAX: (757) 322-4415 or DSN 262-4415

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